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said to be a conflict between the "phagocytes" and the septic material, whether the latter be a dead or dying cell, bacteria or other foreign body. In the invertebrates, where connective-tissue cells are abundant, the vascular system does not participate in the process, only doing so among vertebrates, where the extra-vascular "phagocytes" are not sufficiently numerous to combat the injurious structures, a call for assistance being then given to the "hæmophagocytes." The first effect of irritation is on the connective-tissue "phagocytes," the changes produced in them subsequently influencing the capillary walls, and allowing the transit of the white corpuscles.

The theory has much to recommend it, being founded on logical, *à priori* grounds, and affording simple explanations for many obscure points in connection with inflammation. For instance, it affords a simple explanation for the presence of the large numbers of connective-tissue and white blood corpuscles that have been observed in induced keratitis, and also it explains how in certain epidemic fevers—famine-fever for instance—numerous sprilla, etc., can exist in the blood of as yet unaffected individuals, without causing any symptoms of the epidemic. At the same time the theory is quite compatible with all definitely ascertained pathological facts, a circumstance which alone would give it considerable weight.—*Professor McMurrich, in Canada Lancet, May, 1884.*

PSYCHOLOGY.

SINGULAR FRIENDSHIP BETWEEN TWO BIRDS.—During the summer of 1880, I purchased from a Chicago bird dealer a number of birds for my aviary, and in making my selections, the dealer, after considerable parley, permitted me to separate a male "African cutthroat finch" from his mate, which, with the others, some thirty birds, were shipped here. Of the number was a male white Java sparrow, whose principal occupation seemed to be the pecking and pulling out of feathers of the cutthroat finch. The separation of these two birds was the only way to have peace in the cage, but upon their being brought together the old feud was resumed. While in the cage with the rest of the birds there was but one that took any part in the conflict or attempted to shield the cutthroat, and this was an indigo finch (*P. cyanea*).

The moment that the two were placed in the one cage the Java would at once fly upon the frightened finch and nearly kill him, and he would rush from one side of the cage to the other, eagerly trying to find some place of retreat; perhaps behind some other bird, but only for the moment, for the vicious Java would drive him from his shelter to again chase him to his heart's content.

In the meantime I ordered more birds, a mate for the Java and a number of finches from Africa and other countries, and upon their arrival the experiment of watching their reception by the

birds of the aviary was at once proceeded with. The heretofore abused cutthroat was also placed in with the rest.

Immediately upon his entrance his former manner was changed, and so suddenly, as if by magic. His former expression denoting fear was now abandoned, and the little fellow, with all the sprightliness of the monarch of the aviary, a flit of his wings, a chirp, and he was by the side of a small finch I had not as yet identified. The new-comer was crouched upon the floor of the cage, in fear, and partly perhaps through exhaustion.

It was at once evident that these birds were friends, for there was a caressing of bills, a few notes from the bird, which proved to be a female cutthroat finch, and an apparent communication between them, yet with all their apparent pleasure there was something that made the male cutthroat utter a savage cry, almost a shriek, and away he darted from the side of his restored mate and straightway he attacked the newly arrived Java sparrow. From side to side of the cage they flew, he in hot pursuit; at last he mounted upon her back and with fearful strokes pulled away at her feathers, on the side of her head and neck. The Java uttered tones of pain, but the cutthroat was upon the war-path, avenging the wrong done his former companion. The other birds flew wildly to the top and sides of the cage, seeking shelter from the savage little finch, so suddenly become a monarch. A day before and but one friend did this little outcast have in all the inhabitants of this large cage, and this one the lonely indigo finch. At last the male Java sparrow, the tyrant, went to the rescue of the newcomer of like species; but what a change came over the ruler of that cage, when the cutthroat, with a wild harsh cry, flew upon his assailant and catching him by the lores pulled away like a bull-dog. Another change of position and the finch was upon the sparrow's back, and away they both went, to all parts of the cage, the little one keeping his hold, while each of the other occupants excepting the female cutthroat and indigo finch sought refuge by clinging to the top and sides of the cage, as far as possible from the scene of action. Even a Baltimore oriole that had many times taken pleasure in pecking his sharp bill at the helpless cutthroat, now sought refuge, and even more eagerly than the smaller birds. At last the female cutthroat chirped more loudly than before, and though in the heat of the battle the little mate left his abuse of the sparrow and flew to her side.

At this procedure there was some hurried chirping and instantly the male hopped over to the opposite side of his crouched mate. Then with his bill he laid aside the feathers of her wing, pushing his bill well up into her feathers, thence hurriedly withdrawing, another cry, and once more, more viciously than ever, he flew at the female sparrow, starting her in wild flight before him; in his way he passed the male; at once turning he lit upon him as if to chew him up. Thus did the battle continue for some time until the sparrows were exhausted.

And strange to say that while this last scene was being enacted in the aviary, the indigo finch went to the side of the wounded bird as if to be of greater security, which was needed during the bird's indisposition.

Such was the change in this motley flock of birds, that all but the indigo finch and the female cutthroat feared her mate.

For fear of accident I removed the two finches, male and female, to a cage by themselves, where they remained for some days, when at last the female died from injuries sustained, as I believe, through the attacks of the female Java sparrow while the birds were en-route from Chicago here.

After her death, I again placed the disconsolate mate back into the large cage where, for many weeks, no song was heard from him, and at anytime one could witness the two friends, the indigo and cutthroat finches, sitting as closely as possible to each other upon the perch, and as far as possible from the other birds.

And again, many times did I permit the door of their cage to be left open that all the birds might fly about in a large room if they so wished, and in every instance one of these friends did not leave the cage without the other one following, and when tired of flying about they would nestle together, side by side, upon some picture frame and there in mutual sympathy commune by thought as one.

Truly these were friends and their sympathies went out to console one another. There was no more fighting in this cage and though a long time passed before a song was heard from the affected mate, when it did come it was but a feeble melancholy ditty.

Several of the birds in this cage were kept together for nearly two years, of the number, the four above referred to, and in all that time there was no more fighting nor was there any lack of friendship between the two bird friends referred to here.

At last, when I found I could no longer care for my birds as I ought to, they were forwarded to St. Louis, Mo., and though some died upon the way, I believe the most of them are at this day in the Zoölogical Gardens of that city.—*D. H. Talbot, Sioux City, Iowa.*

FILIAL AFFECTION IN A HORSE.—M. Briot, chief engineer of the province of Scutari, Turkey, sends the following to the *Révue Scientifique*. A band of Albanian mountaineers, with their flocks, cattle and horses, arrived at the Drin when that river was swollen by a freshet. To cross in the only boat at hand would have taken twenty-four hours at least, so they tried to force the animals to swim. About twenty horses, including five or six mares with their foals, were at length driven into the water. All crossed safely except one old mare laden with an enormous burden. Gradually forced downwards by the current, she seemed to give up the struggle. But while the other foals were prancing joyously around

their mothers on the opposite bank, one ran around neighing sorrowfully. Soon this foal of three months came to the bank, and, gazing over the stream, perceived his mother, who was already carried some thousand feet down stream. With a piercing, indescribable cry, and a prodigious bound, he sprang into the water. For an instant he disappeared, then came into sight swimming vigorously towards his parent. Unable to see her for the waves, the young creature, who just before had feared to enter the water, sprang forward by bounds with outstretched neck, neighing at each bound. The mother heard and responded, raised her head and seemed again to care for life. The foal reached its mother, allowed her head to rest on his shoulder as he swam towards shore, and succeeded in saving her. "The horses here have more moral sense than the people," says M. Briot. He who reads the daily papers will be likely to come to the same conclusion as regards other countries than Albania.

ANTHROPOLOGY.¹

BUREAU OF ETHNOLOGY.—The second annual report of the Bureau of Ethnology to the secretary of the Smithsonian Institution, 1880-'81, by J. W. Powell, director, is just issuing from the Government press, bearing the date 1883. The volume will be uniform in appearance with the first, and will contain xxxvii—about 500 pages, 77 plates, 714 figures and 2 maps. The following is the table of contents :

Report of the director. pp. xv-xxxvii.

Zuñi fetiches. By F. H. Cushing. pp. 9-46.

Myths of the Iroquois. By Erminnie A. Smith. pp. 47-116.

Animal carvings from the mounds of the Mississippi valley. By H. W. Henshaw. pp. 117-166.

Navajo silversmiths. By Dr. Washington Matthews. pp. 167-178.

Art in shell of the ancient Americans. By W. H. Holmes. pp. 179-306.

Catalogue of collections, etc. By James Stevenson. pp. 307-422.

Catalogue of collections. By James Stevenson. pp. 425-466.

The editorial work on the volume has been in charge of Mr. James C. Pilling, and the reader will feel his obligation to him on every page.

The report of the director is devoted mainly to an account of the operations of the bureau and to abstracts of the papers in the appendix. "The investigations," says Major Powell, "have been pursued in the four great departments of objective human activities, viz., arts, institutions, languages and opinions. The facts in each field of research throw such light upon each other field that one cannot be neglected without injury to the others." The work of the bureau is carried on mainly by specialists in its employ, but collaborators in all parts of the country assist in many ways.

¹ Edited by Professor OTIS T. MASON, 1305 Q street, N. W., Washington, D. C.